

**Notice of Allowability**

Application No.

10/653,322

Applicant(s)

WORTEL ET AL.

Examiner

Art Unit

Nhan T. Le

2685

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/02/2003.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 11/29/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## DETAILED ACTION

### *Allowable Subject Matter*

The following is an examiner's statement of reasons for allowance:

Claims 1-20 are allowed.

As to claims 1, 9, Pan (US 2005/0191974) teaches single side band transmission comprising a frequency shift keying (FSK) coding logic circuit (see fig. 1, digital generator, paragraph 0009); a first digital-to-analog converter (DAC) coupled to a first output of the coding logic circuit (see fig. 1, DAC, paragraph 0009) and a second DAC coupled to a second output of the coding logic circuit (see fig. 1, DAC, paragraph 0009); a first filter coupled to the first DAC (see fig. 1, LPF, paragraph 0009) and a second filter coupled to the second DAC (see fig. 1, LPF, paragraph 0009); a first mixer coupled to the first filter (see fig. 1, mixer, paragraph 0009) and a second mixer coupled to the second filter (mixer); wherein the coding logic circuit is operable to receive digital input data at a rate determined by an operating signal frequency (see fig. 1, 1100100, paragraph 0009), Vassilion et al (US 2004/0106380) teaches direct conversion transceiver enabling digital calibration comprising a first digital-to-analog converter (DAC) (see fig. 1, number 46a, paragraphs 0043-0046) coupled to a first output of the coding logic circuit and a second DAC (see fig. 1, number 46b, paragraphs 0043-0046) coupled to a second output of the coding logic circuit; a first filter coupled to the first DAC and a second filter coupled to the second DAC (see fig. 1, filter, paragraphs 0043-0046); a first mixer coupled to the first filter and a second mixer coupled to the second filter (see fig. 1, filter, paragraphs 0043-0046), Cheng et al (US 2005/015180) teaches

method for integrating a plurality of radio system in a unify transceiver structure and device of the same comprising a first digital-to-analog converter (DAC) (see fig. 3, number 34, paragraphs 0037-0044) coupled to a first output of the coding logic circuit and a second DAC (see fig. 3, number 36, paragraphs 0037-0044) coupled to a second output of the coding logic circuit; a first filter coupled to the first DAC and a second filter coupled to the second DAC (see fig. 3, numbers 32, 33, paragraphs 0037-0044); a first mixer coupled to the first filter and a second mixer coupled to the second filter (see fig. 3, numbers 28, 29, paragraphs 0037-0044); and a summing device that combines an output of the first mixer and an output of the second mixer, providing a modulated output signal; wherein the coding logic circuit is operable to receive digital input data at a rate determined by an operating signal frequency (see fig. 3, number 27, paragraphs 0037-0044. The teaching of these prior arts either combine or alone fails to teach wherein the coding logic circuit is further operable to generate a digitally encoded first periodic signal based on the digital data input and to provide the digitally encoded first signal to the first DAC; wherein the coding logic circuit is further operable to generate a digitally encoded second periodic signal and to provide the digitally encoded second signal to the second DAC when amplitude of the digital input data corresponds to a first level; wherein the coding logic is further operable to generate a digitally encoded third periodic signal and to provide the digitally encoded third signal to the second DAC when amplitude of the digital input data corresponds to a second level; wherein the first mixer is operable to receive a fourth signal substantially shaped like the second signal, and to multiply the fourth signal with data signal received by the first mixer from the first filter;

Art Unit: 2685

wherein the second mixer is operable to receive a fifth signal substantially shaped like the first signal, and to multiply the fifth signal with data signal received by the second mixer from the second filter; wherein the first signal is substantially equal to the second signal shifted by a determined phase angle; and wherein each DAC is configured to generate a non-linear output.

Dependent claims 2-8, 10-20 are allowed for the same reason.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Le whose telephone number is 571-272-7892. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2685

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nhan Le



12 - 8 - 2005

**NGUYENT.VO  
PRIMARY EXAMINER**